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ABSTRACT

Previous research has shown how macro-structures can affect children's verbalizations. This study focuses on whether conversational contexts of forms are learned along with syntax, on what makes syntax, and on how to predict speech. Transcripts of videotapes of young children provided a matrix of function or act against actual utterance, wherein the most concrete formulation preserving function was sought. Analytic categories needed for this purpose were (proper) NAME, ACT, OBJ (of action), and (concrete) OBJECT. Findings show that: (1) starting with function categories results in massive simplification of early speech data; (2) production rules must include reactions to prior talk and surrounding circumstances; (3) the degree of syntactic abstractness or generality changes in proportion to function, context and discourse information included in the production rules; (4) syntactic rules derived from textual data depend strongly on the type of interaction sampled; and (5) clinical analysis of some child texts show that "bursts of syntax" or outer limit lengths combined with new syntactic complexity occur under highly motivated situations. Pragmatic, conversational, and circumstantial contexts can all radically alter what is displayed of the child's knowledge. It is concluded that clarifying structural organization at other levels also clarifies the syntactic apparatus used to accomplish cohesion, procedural repair work, interpersonal goals, and referential semantic communication. (MHP)

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FROM CONVERSATION TO SYNTAX[1]

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Since the early sixties, observers of conversational interaction have tried to identify frameworks which could account for specific utterances and their formal structure. Such a goal addresses again the problem of the shift of attention when observers inspect a transcript, in comparison to the perspectives of participants. In contrast to the linguistic canon of the forties, which began with phonetics and moved up to the utterance, this has been a top-down view of the analysis of ongoing speech. It assumes that actors make higher-level decisions which become apparent to other participants through context-sensitive realizations which could be at any rank. The decision to role-play mother may have effects at the level of episodes (making dinner), acts (directing, scolding), lexical selections (honey), pitch and intonation. Each of these in turn cues the other child to interpret the other features as part of the role, and to comply by a reciprocal role or to risk criticism ("You can't say honey, I'm the mommy.") To simply count any of these features without considering their occurrence within the context of the role-play would be a serious loss of structure and of information.

What can we achieve by looking first at the macro-structures in children's interactions? We see features first that effect long stretches of speech continuously.

We have found of course that setting alters speech in major ways. Greenfield and Smith's analysis (1976) is extremely revealing of the consequences of setting changes in eliciting children's earliest verbalizations. Changes in objects, personnel, locations, states or activities could attract the attention of the child and lead to speech.

Roger Barker (1963) spoke of "standing behavior patterns." Some of these are object-centered, as in early sensorimotor schemata. Eve Clark (1973) and Judith Johnston[2] have strong evidence that the physical properties of objects suggest both speech and actions by the child: a container is to put things in, a surface is to put things on. Also, many objects have a culture history for a child. Picture books call forth picture-naming, puzzles call for searching, finding, completing, and speech which accompanies these events. Surely these patterns with books and puzzles are in part a result of what partners have done with them; at four naming is not nearly as salient as at two, and narratives appear. That is, there has been a customary speech event surrounding each object.

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In the following two sets of exchanges, the contrast in the child's replies is not stimulated by the adult but by contrasting objects:

(1a) A: What's this? (picture) C (1.52): Is a quack-quack?

(1b) A: That's a cat, isn't it. C: Cat, baby cat.

(2a) A: What is it, H? (puzzle) H (2.13): Monkey. Back. Eye.

(2b) A: That's part of his cheek. H: Cheek. Want cheek. Put back. That mouth. Mouth there?

While the adult's utterances regarding the puzzle and the picture book were in these examples similar, the child's were not. The child remained with naming in the case of the picture book, but moved on to searching, manipulation, and location in talking about the puzzle. We could not fully account for these exchanges without knowing the differences in the standing behavior patterns surrounding picture books and puzzles for this child.

When play objects are removed from the child's surroundings, we may see a maximization of sound play, treating language itself as a play object. Ruth Hirsch Weir (1962) and Elinor Keenan (1974) both obtained such texts in darkened bedrooms. Our best speech play sequences have occurred as children bounced in cars, or talked on the telephone (see 6 below). When children were captive in adjacent chairs, they made word games but used gestures and adjacent objects as the content (see 7-9 below).

A second continuous feature affecting speech can be intention. In young children, continuity of intention can be displayed in repetition. When there are three or more participants, a child's repetitions can appear intrusive on the ongoing talk of the others:

---

(3) (E 2.3 extends grapes to A 4.6)

E: Allen, Allen. Allen, Allen.

A: Did you see it? (to Ruth)

R: I didn't see Frankenstein.

E: Here.

A: (takes grape from E) (nods) Frankenstein

R: I missed it. So did the house burn up?

E: Allen. Allen. Allen. Allen.

A: didn't get killed. He keeped running.

E: That's good.

A: OK, Elly (takes grape). That's good.

When Elly intended to interact with older partners she often seconded their initiatives by repeating or made offers. Her offers of a grape took very limited forms, as in (3). Allen is put in the position of dealing simultaneously with two exchanges. He solves this dilemma by talking with the adult, Ruth, and acknowledging Elly's third offer nonverbally. After her fifth offer, the conversation with Ruth being over, he entered into a longer exchange with Elly with a verbal acceptance.

In the fourth text, a four-year-old attempts to persuade adults to look at the outside sprinkler system. They do not want to leave the videotape so he keeps repeating his demand:

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(4)

T (4.4): No, not at the end. Now. Cause I

Mother: Maybe we could do that at the end.

Visitor: Yeah.

T: want to show him. No, let's do it now.

M: Well, you know it's so warm outside.

T: Let's do it

M: I'll bet they'd just like to sit for awhile where it's nice and cool.

T: Mommy.

M: T has a little problem with patience. We're working on patience.

T: Nothing. I want to turn them on now.

M: What is patience, T? Come on. What is patience?

Both texts (3) and (4) share an internally driven preoccupation which gives an observer a chance to see the child's range of means for achieving a goal. The younger children are more limited both in pragmatic devices and in surface forms for each act selected, so there is much more repetition in the youngest children's speech.

In older children, there can be continuity of intention with shifts in strategy. The child may offer supporting arguments or reasons, turning on expressed or implied needs, obstacles to other routes, real world information. Garvey (1975) has given numerous examples. In addition, children may use fantasy to imbed a desired activity in a context more palatable to a peer partner. One of Garvey's preschool examples illustrates both pretense and shifts:

(5) Pretend this was my car. No! (sitting on toy car)

Pretend this was our car. All right.

Can I drive our car? (turns wheel, driving) Yes, OK. (moves away)

When intention is the ongoing feature in an exchange, it becomes possible to examine strategic devices both in terms of repertoire and sequential structure.

Another unity is key or mood of the interaction. Key is a term used by Hymes (1974) referring to the seriousness, humor, sarcasm and so on of an interactional situation. Successful interchange may depend on a joint recognition of key. In the following telephone conversation, the onset of playful mood was signalled by a giggle and a nonsense reply by the partner. There was then a long and successful conversation with highly varied humorous sallies from both sides. At the beginning, before the play began, M said some people were coming to the house:

(6) S (4.2): Toodleoodleoodledoodoodoodooo.

M (4.5): I loove ya know who I love what's the bad bear. My friendly elephant too. teheehee tehehe I-I-I made a picture of Miss Muffent (giggles).

S: Miss Muffet? Who's she?

M: I'm looking at the rain out there. .....

S: You silly billy. There's not people coming. You're a funny bunny. There's not people coming.

The key of this conversation was playful, and included sound play, nonsense, growls, onomatopeia, and pretence. In this context the asserted fact about guests became a target for joking.

In the following three segments the children were younger. The two-year-olds were seated in high chairs near each other during a play session at Elly's house. An adult has just offered them juice.

---

(7) E (2.4): Want some juice? ´Yeah. ´Yeah. ´Yeah. `Yeah!

P (2.4): ¯No. ´No. ´No. ´No. `No.

In these rounds the semantic contrast was simply affirmative/negative alternation. The sequence terminated when both used falling contour.

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(8) P: (kicks E's foot) (screech) Elly stop it.

E: (kicks back) Uh, stop it.

P: (kick) (kick) (kick) (kick)

E: Hey, stop it. Stop it. Hey, stop it. Hey, stop it. (kicks)

These rounds also contain an affirmative/negative contrast but the affirmation is a nonverbal act. A later, longer series contained kick-"don't" a dozen times. Both children seemed contented with the long routine.

---

(9) P: I'm gonna take my sock off. Shoe. Sock. Sock.

E: Shoe. Sock. Sock-sock.

P: My sock. Shoe. Donkey. (Screech)etc.

E: My sock. Shoe. See a donkey. (Screech)

Series (9) is verbal-referential. More semantic complexity has appeared in associative, paradigmatic shifts which are repeated by Elly's partner.

These early cycles show that contrast and minimal paradigmatic change can be the stuff of play cycles. These are inventive collaborations, but at first seem to lack elaborate internal structure. Yet their success requires that the participates recognize the key. In (7) "want some juice?" could only be a mock-offer, reopened by a confirmation-question form, "yeah?", rather than a denial form with

falling pitch. The reply was also rising, giving both a tentative note. On reading the transcript of (8) I was sure a dispute would develop, but the audio tape showed no escalation in content, pace, or prosody, which Brenneis and Lein (1977) found to characterize children's disputes.

Exchanges (6) through (9) reveal the ability of children to interpret cues of key so that collaboration is successful. Structurally the play shares some features with monologues such as those in Weir's (1962) bedtime recordings, but consistency of key between partners must be a conversational achievement (Garvey, 1977).

Topic is a fourth feature which can identify episodes. In our earliest texts conversation was activity-/object-centered, or involved speech play, so topic was rarely an independent cohesive feature beyond short-range local exchanges. Example (3) illustrates topic cohesion across the intrusions of the younger child. The life history of a topic must be included in the analysis of macro-structures since the form of a child's utterance can be affected by whether the child is introducing a new topic or elaborating one already present (Keenan and Schieffelin, 1976).

The analysis of the macro-structures in texts makes speech to children by adults seem quite different, the speech which Grace Shugar called the "discursive workshop" (1974). Catherine Snow (1977) has pointed out that these interchanges begin so early in infancy that the child's turns may be occupied with burps and gurgles. Adults on these occasions simulate conversation with questions and confermations using components, even formulas, from later talk. Children do the same with animals, asking "what's your name?" as if they could speak, carrying a strategy used with children to animals.[3] The partners in these interactions carry on their half of the conversation, like preschoolers mimicking the adult half of telephone talk. Snow found the mothers answering their own questions on occasion.

What we see later, when the children participate, is more commonly controlling, tutoring, or speech eliciting. There are conventional strategies for accomplishing each of these ends. For teaching one can ask tag questions when children are likely to repeat, one can repeat to expand or confirm, one can ask a child to locate or name familiar objects, people or acts. To elicit, one can ask known-answer questions, ask about recent events and nearby objects, use tag questions. To maximize success, speakers to children also appear to exert controls on lexical and semantic difficulty by keeping talk to the here and now, reducing the density of semantic information per structure, rewording, repeating, and confirming what has been established already by the child.

In 1968, in reacting to nativist attacks on the inadequacy of

speech to children as an acquisition source, three of my students, Drach, Kobashigawa, and Pfuderer (1969) examined maternal input to children in the Boston research data and our Oakland, California, material. They looked at variables which seemed pertinent to syntactic acquisition and found a great deal of repetitiveness, shortening of length, simplification of syntactic depth, and a high frequency of imperatives and questions. It now appears that their findings are in many respects not direct reflections of speakers' adjustments of syntax but of higher level adaptations (Ervin-Tripp, in press; Newport, 1976).

An analysis of the structural determinants of speech to children can help us understand how speech accommodations are accomplished by adults or by four-year-olds who also accommodate. They can suggest some of the conversational routines children are taught. As for syntactic modelling, it remains to be seen whether the conversational contexts of forms are learned along with the syntax.

It has been gratifying to learn about macro-structure. But the work on discourse seems to be a deviation from our original quest for syntax. Twenty years ago, after the appearance of Syntactic Structures, some of us began looking at children's syntax because it seemed that there must be powerful organizing principles from the beginning of language. The diaries up to that time denied syntactic order.

We did indeed find there was order, and productivity. But the first new studies of syntax in the early sixties did not meet the criterion I think most of us working on child language implicitly carry with us. None of those studies, nor the syntactic work since, has allowed us to examine a context and predict what the child is likely to say. And there has been continuous argument about the psychological reality of both semantic and syntactic units.

When the early distributional analyses failed, a series of alternatives has been tried. The first was to attribute inferred syntactic units to the child which were deleted. Another tactic was to shift to a search for regularities at other levels, first semantic, and now at the level of discourse. But does this help us solve the original problem, or is it a shift in goals? Is it a kind of nugget-picking to avoid deep mining? Can we see what makes syntax change?

The analysis of discourse has made it clear that some properties of later discourse are strongly affected by syntactic resources. One example is the development of focussing which rests on a syntax more elaborate than the two-year-old's. For instance, in verb ellipsis the auxiliary may be retained while the predicate elements of object, main verb, and locative, which would be present in telegraphic utterances, are deleted. Here focus shifts to affirmation, negation, tense or modality, which might have been implicit before. Another example

is the development of close-timed turn-taking. The taking up of a turn at "transition-relevant points" (Sacks, Schegloff and Jefferson, 1974) requires the development of syntactic skills to the point of rapid sentence processing by listeners while preparing a new utterance. Between two and four there is a notable change in these skills. Syntax influences discourse patterns, but can we consider that the growth of conversation stimulates syntactic change?

It is a common belief that the growth of ideas influences syntax. In this view, syntax is a resource, like lexicon, a kind of fancy dress for an idea to go out in. Ideas and interpersonal goals go on growing and embellish themselves in whatever garb are available. Since both ideas and syntax change with age, it is difficult to disentangle the two, as was apparent in Brown's analysis of English morphology (Brown, 1973). Cross-language comparisons have been proposed by Slobin (1973) as an ingenious solution.

In trying to meet the criterion proposed above, I have begun with production rules. These have not been as context-centered as I would like for lack of diverse contexts from each child. I have tried then to locate syntactic emergence in the residuals, in abstract rules which first occur within particular contexts, and then become generalized and less context bound.

The production rules in (10) are partial, in the sense that they derive from a limited set of contexts, and include only instances with at least two tokens.

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(10) Elly (2.3-2.5):

Call attention: (Hey) + NAME

Offer: (You like it? / (Want this? / (Here

Desire: I want (OBJECT / (ACT (+ OBJ)

Command: (you) + ACT (+ OBJ)

Prohibit or Mock warning): (Stop it / (Don't

Permission req: Can I + ACT?

Epithet exchange: REPEAT

Contrastive offer: That's NAME'S

Assent: (OK / (kay

Refuse: (no / ('unh-'unh

Affirm: (yeah / (REPEAT

Reply to rising contour: (yeah / (no

Claim: (That's) (mine (my OBJECT	Locate: (There he/it is. (There's (NAME (OBJECT
Announce achievement: I + ACT+OBJ	Complete act: There
Command observe: (Look (Lookit OBJ	Solicit info: What's that?
Initiate identification: That OBJECT	Initiate comment: That's good.

This analysis obviously has a strong debt to Michael Halliday (1975), whose diacronic syntax was based on acts. My strategy has been to work out of transcripts of videotapes, by making a matrix of function or act against actual utterance, seeking the most concrete formulation which preserves function, in line with Braine's analyses (1976). The analytic categories needed for this purpose have been (proper) NAME, ACT, OBJ (of action), and (concrete) OBJECT. The utterances in the corpus include put it, tear this, go-peepee, see, do cape, come-here, eat my breakfast. All of the above were characterized as ACT or ACT + OBJ.

The settings for Elly's speech were quite different from those recorded by Roger Brown (1973), Wick Miller (Miller & Ervin-Tripp), or Lois Bloom (1970). The texts are natural conversations in the family with siblings, parents, and playgroup. The children ate lunch and snacks, made cookies, dressed up for Halloween, discussed TV shows, came and went from the play group. The text, compared to texts of adult-child interaction, shows a much lower amount of adult questioning and confirming, a decrease in utterances about novel things evoked by experimenter books and toys, less referential speech, more social speech with complicated interpersonal functions.

Many of the utterances are similar to those found in peer interaction by Fillmore (1976) in her study of elementary school children learning English as a second language, and to my samples of the French spoken by English-speaking elementary school children in their first month (Ervin-Tripp, 1974).

(11) Formulaic speech by Spanish-speaking children:

Get out, stupid. Be quiet you. Oh yeah.

I dunno. Gimme see. Looky see. What you say?

(12) Formulaic speech by Anglophones learning French:

je-ne-comprends. (I don't understand)

allez-y (get going)

assieds-toi (sit down)

tiens (take it)

regarde + OBJ (look at +)

In both of these second-language studies the data consisted of peer interaction, in which the great bulk of utterances were relatively formulaic, situated speech accomplishing interpersonal acts.

In each text I have examined, I have tried to identify "bursts of syntax." By that I mean instances when production goes beyond the boundaries of the rules for the preceding texts.

These are of two kinds. One is a kind of paradigmatic expansion to a new variety. Bloom, Lightbown, and Hood (1975) have discussed the evidence that some structures are begun with nouns, some with pronouns, and that there were individual differences in this respect. The paradigmatic extension of a syntactic structure to a new variety of replacement is illustrated below:

(13) Elly (2.4):

E: I drew my name. That's my name.

Mo: That's your name?

E: Where's his name? (pointing to P)

The child's interest in possession is shown in her use elsewhere of claims and contrastive offers which identified owners.

A good instance of a syntactic performance burst of a form that more dramatically extends the sentence frame was produced at the same playgroup session when Elly was drawing. She had been boasting about achievements repeatedly, including I go peepee. In order to share a picture book with a friend, Elly had happily torn some pages out and handed him some, announcing I tear this. Her mother seemed mildly amused at this solution to sharing. It seemed a boast, not a confession.

(14) E: (2.4) at play session while drawing:

Mo: Oh, what did you draw?

E: Nana. Nana.

Mo: Did you draw a banana?

E: Yeah. I draw a banana in a garden.

Mo: A banana in a garden.

E: In a garden. A banana in a garden.

The syntax of early descriptive utterances normally does not go beyond a nucleus. To qualify the object with a locative prepositional phrase is a considerable elaboration, at this stage. Elly had not discussed locations before in this text except by pointing and deictic terms like "there." In this case the location became a figure, a creation and focus. If ever there was an occasion for boasting it is for a drawing. The drawing had already been made, the imaginative input and the symbolism were expressed visually already by the time the utterance was made. The adult supplied the verb, then the nuclear phrase. The child took what the adult produced and expanded it to represent verbally a maximum achievement. The utterance is representational, but the impulse to expand it may come from the boasting context.

We can suppose, in contrast, that rejection or refusal would be unlikely candidates for syntactic elaboration. Consider the humor in the following song, which in part comes from the reiteration, in part from the expansion of a negative. When cast in the affirmative it is not so funny.

(15) Whoever shall have some double-decker chocolate ice-cream cone
And giveth his neighbor none,
He shall have none of my double-decker chocolate ice-cream cone
When his double-decker chocolate ice-cream cone is gone.

(Hinton, 1964)

In this example we have seen that some reasonably successful production rules for a child of two years three months could involve a fairly small syntactic apparatus. But is this true in text samples where there is less diversity of interpersonal functions and more referential variety? What if adults push for referential explicitness?

My next example comes from the texts more typical of the syntax studies, primarily involving adult-child interaction with a strongly tutorial-eliciting context. For this child, Sally, we collected 45-minute weekly samples including the period from 1:39 to 1:45. Because of the eliciting style of the adult, Wick Miller, with her, we have especially rich data on her reply strategies.

(16) Sally: 1:42-1:45 (reply strategies)

Byebye (Sally): Bye-Bye (Sally).

How / Where are you?: Fine

Hm? : SELF-REPEAT

RISING PITCH + DIRECTIVE / CONFIRMATION QUEST / Y/N QUEST: (yeah / (REPEAT + STRESS SHIFT / (NR

For rising pitch questions she usually said "yeah," and sometimes repeated all or part. She did not verbally differentiate directives, information or tutorial questions, or repetitions requesting confirmation--which are common in our texts. By the third week, she began to reply to hm? which she had ignored at first, by supplying self-repetitions.

While she did not verbally differentiate question types, there were behavioral consequences. The directives like "D'ya wanna put Joe's hat on?" usually referred to feasible acts. As Marilyn Shatz has pointed out (1975), to hear a feasible act at this age is to carry it out. The fact that the child also hears the rising pitch and supplies a concurrent verbal response is simply another response system. We have all seen occasions in which replies and acts are mismatched, either way. She did not always comply, but she produced no negatives in this period. In these cases she continued with her actions or intentions and talked about those.

In some cases she was asked to confirm an incorrect utterance. The adult either misquoted her or said something with rising pitch that didn't match what Sally saw, said, or thought. In these cases she repeated with stress on the corrected element. Later, on a few occasions, she deleted all but the correction. In replying to Wh-questions, especially those with normal sentence order and rising pitch, she followed the same strategy (e.g., you saw what?).

(17) Sally: (correction sequence) 1.43

A: Got Joe all done up in a blanket? (refers to doll)

S: Baking. Baking an. Baking an. Baking an.

A: Button on?

S: Baking an.

A: Button on?

S: Baking.

I emphasize these procedural exchanges because they display developing skills in repairing the conversation. Hatch (in press) has recently stressed the importance of procedural skills for second language learning. Sally did know how to correct her partner's errors, especially those respecting her own contributions.

She was less adept at first in eliciting new information. She knew no question words, though she responded to them. How, then, could she stimulate her partner to teach her? To elicit a name from her partner she either said this? or tried a name and was corrected.

(18) Sally: Representational utterance examples

1.39 wéar hàt
sweater wéar

1.40 pánts òff.
hat on./off.

1.41 Dáddy hóme (shakes head)

1.42 Thàt béad
thís-one yellow.
thís broken.
thát lády níght-níght.

Bónny ride.
Bónny chàir.
Bónny night-night néa.

1.44 réd púrse

1.45 pénny wráp in-néa. (penny wrapped up in a bottle)

1.45 my hánd wét
Sally hánd stícky
washing Jóe pants

Í wear jácket
Ì sit déa
Sally sít dèa

When Sally's utterances were divided by function, as in (18) through (21), there is a considerably richer variety of representational types than was apparent in the peer speech of Elly. The speech refers to objects, pictures, dressing and manipulating of the dolls, Joe and Bonny, and her own acts and states. A fairly typical semantic range (e.g., Wells, 1972) appears. The control utterances are structurally identical, except that ostensive or pointing utterances were not used to control.

Ostensive utterances consisted of a deictic frame like that, this, or this-one and a complement, which was variably a name or property. At 1.42 she produced her first multiword complement, that lady night-night. Two weeks earlier, the same picture of a woman on the beach was called mama down. The later version verbalizes the pointing finger by means of the deictic frame. These deictic frames can be interpreted as a transition between the earlier stage of simply pointing as one names or characterizes. The topic is then supplied by the nonverbal context. In the ostensive utterances, the deictic word brings the topic into the sentence frame. This is a new conquest for the verbal skills of the child.

(19) Sally: (Control utterance sequences)

1.40 chái. read chái. Sálly réad.
Sálly réad.

By 1.40 Sally talked about locations. She did locational talk in two ways. One was to refer to names of places, as in read chair, with stress. The other was to refer to change of location as in off and on, which conflated act and location, and were always sentence final and typically had less stress than the nouns.

At 1.41 she tried to discuss the removal of a teddy bear from her chair (20) and possibly her own intention to get in the chair.

(20) Sally: (Control utterance sequences)

1.41 chair. chái òff. Sálly chái. Sàlly chái.

We cannot distinguish possession and location except by stress; usually the possessor and the location were the stressed elements in

the pairs. By the stress argument, both Sally as possessor and as occupant are represented in the two sentences Sálly chàir and Sàlly chàir. She cannot accommodate, in the sentence schemas she has at 1.41, two kinds of locational relations, or a location and a possession, as in *téddy òff Sálly chàir, or *Sálly chàir òff. This was, then, a case where complexity of idea did not produce a syntactic solution.

By 1.45 we find new kinds of syntactic complexity in representations: colors in prenominal position, modified nouns in tree relations to larger constituents, more frequent specification of agents.

(21) Sally 1:45

a. S: whíte swèater ón.	Syntax old OBJ + LOC ACT Object is modified by color term.
A: Are you going to wear two sweaters?	Stress implies contrast.
b. S: On.	
A: Hm?	
c. S: Whíte swèater òn.	Repetition reply to hm?
A: You've already got one white sweater on. Look, Sally.	
d. S: Thìs-one blúe-one ón.	Ostensive frame extended to control, with OBJ + LOC ACT as a complement.
A: Put the blue sweater on instead, huh?	Reacts to contrastive stress.
e. S: Blúe swèater òn.	Same as (21a)
f. S: Weár (?) blúe sweáter ón?	
A: You've already got one on.	
g. S: Thís-one weár....	Ostensive frame extended to control, ACT as complement.

h. S: Mómmy (wear (?)) ón. — Vocative, possessive or agent ambiguous.

Mo: I have the sweater on. — Heard as agent.

i. S: Sálly blúe-one swéater ón. — Contrast in color and possessor or agent both in one utterance. Double modification.

Mo: Sally, you got blue pyjamas on.

j. S: Sálly swéater ón.

Mo: All right, we'll put the blue one on.

k. S: Pink.

The structurally most complex utterance in the sample from Sally is (21i) Sally blue-one sweater on, with the meaning of "put a blue sweater on Sally," or "put Sally's blue sweater on her." Slightly abbreviated, the dispute is presented in (21). The sequence displays two novelties besides the long utterance. One is the modification of head nouns with color terms within longer structures. Earlier color terms had appeared only in naming. Since other forms of noun modification in larger structures appeared at the same period, notably possessives in representational utterances, this extension is consistent.

Secondly, ostensive frames appear here used for commands, as in (21d) and (21g), though before the ostensive utterances were merely representational in function.

The pattern of directives terminating in on is well developed, dating back a month. What is new is joining it to a person and noun modification. We can see logistically how this happened. The argument turned first on the color of the sweater. After an interruption to carry a pile of clothes back she had removed from a drawer, her comment (21h) is misunderstood. At this point the wearer, the color, and the type of garment are all contested, leading her to produce emphatic assertions about all components. In contrast to the instance at 1.41 (20) when she could not combine several elements into one utterance, she has several compatible syntactic frames which are assembled in this utterance. These include POSSESSOR + OBJECT, COLOR + OBJECT, OBJECT + ACT/LOCATE. Since she had already begun to replace OBJECT with modified forms the chief problem solved in this

utterance must be the relative ordering of color/possessor. If Sally is actor, then there is no precedent for an actor complementing an ACT/LOCATE schema, unless (21h) is such an instance. The major change from her syntax a month earlier is the emergence of constituent expansion in the noun phrase.

We cannot of course account for why a child solves a syntactic problem at a particular moment. We can only reduce or account for variation by taking account of all determinents.[4] However, by examining conversational interchanges we can see how the "discursive workshop" has helped the children develop syntactic production by providing models for partial repetitions, and misunderstandings which pressure explicitness.[5]

When I began examining the discourse context of texts a few years ago, it was in the hope that the elusive goal of being able to predict speech better would be closer than with our prior syntactic characterizations. Let me summarize what seem to me the main findings of this approach so far.

I. Starting with function categories results in a massive simplification in the data for early speech, especially in natural interaction where interpersonal acts are diverse and speech is often formulaic. Failure to make such classifications is likely to result in confusing superficially parallel instances in which the production system is quite different, as different as "Why don't you sit down" and "Why don't fish talk." We illustrated this problem with the production rules of one child in peer talk.

II. Production rules must include reactions to prior talk and surrounding circumstance; for example, it is possible that the structure of replies to questions about present and absent referents at an early age may differ. Local reply rules, which include conditions for repetition, are strong instances of the need for including discourse relations in syntax. Later cohesion systems such as deletion and pronominal anaphora clearly also require discourse-centered analysis. We illustrated this problem with the adult-child interaction case, where though the sample was restricted in interpersonal functions, the repairs, replies and other discourse-related acts strongly affected the child's speech.

III. When contextual, functional and discourse information is included in production rules, the level of abstractness of syntax may prove to be fairly limited at first, as Braine has pointed out (1976). When there is evidence of transfer of patterns across function categories, the degree of generality of syntactic categories may increase. It still could remain the case, of course, that for some functions production rules remain relatively low-level and formulaic, as in greetings. In the case of directives, forms which begin as formulas, and are

commonly so used, may be reanalyzed later to permit production of paraphrases, e.g., "Can you X" leading to "Would you be able to X." Thus the level of abstractness may change even in adults.

IV. The syntactic rules one can derive from textual data depend strongly on the type of interaction sampled. We found extreme differences between peer speech and speech with adults who use an eliciting mode. It will be very useful to explore the relation of syntactic features to context far enough to know what contexts are most likely to yield what forms, simply for methodological utility--and for language instruction.

V. Just as second-language learners push their syntactic and lexical knowledge to the limits on occasions of strong desire to communicate, a clinical analysis of some child texts showed that "bursts of syntax" or outer limit lengths combined with new syntactic complexity occurred under highly motivated situations in which boasting or argument compelled a maximum display of information.

If one believes that syntax is learned entirely by trying to understand what others say, then these changes in production conditions are irrelevant to the acquisition of syntax. Then a silent, attentive listener could learn syntax. But if being understood is important, then the interchanges about what is missing from speech and context, the forms supplied by the partner, can be a source both of the forms selected and the primacy of some structures over others in acquisition. At the very least, the pragmatic and conversational context can radically alter what is displayed of the child's knowledge. If data about syntax depend on the circumstances of production, they alter what is displayed of the child's knowledge.

The analysis of discourse is not a distraction from the study of the development of syntax. By clarifying structural organization at other levels one can leave in clear relief the syntactic apparatus used to accomplish cohesion, procedural repair work, interpersonal goals, and the referential semantic communication that traditionally was thought to be the primary function of syntax. For this reason I expect to see considerable progress in our understanding of child syntax as more contextualized theories and analytic methods develop.

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[1] The work cited in this paper was done under NIMH Grants M2813 and 26063; the recent analyses were heavily dependent on the aid of Ruth Bennett, Ruth Miller, and Jarrett Rosenberg.

[2] Personal communication, to appear in a forthcoming dissertation at the University of California, Berkeley.

[3] Michael Salomon, in a term paper.

[4] Bloom, Miller, and Hood (1975) reject the argument that significant variance in syntax is explained by pragmatic and discourse considerations.

[5] Scollon (1976) and Hatch (in press) have given the most encouraging analyses of this process. Their analyses suggest that the partner can strongly shape utterance completeness by eliciting or supplying missing information, and that although on the face of it--and certainly to the participants--this seems to be a normal semantic or pragmatic clarification process, it has strong syntactic consequences in the child's learning.

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